查询LH4002供应商

Wideband Video Buffer

calogic CORPORATION

LH4002A / LH4002 / LH4002C

FEATURES

- **DC to 300 MHz Bandwidth with V_S = ±5V**
- **3000 V/µs Slew Rate into 50Ω**

APPLICATIONS

- **Wideband Amplifier Buffer**
- **Wideband Line Driver**
- **Video**
- **Coaxial Cable Driver**

GENERAL DESCRIPTION

The LH4002 family is a high speed voltage follower designed to drive video signals from DC up to 300MHz. At voltage supplies of ±5V, the LH4002 family will provide up to 80mA into 50Ω at slew rates of 2000 V/µs.

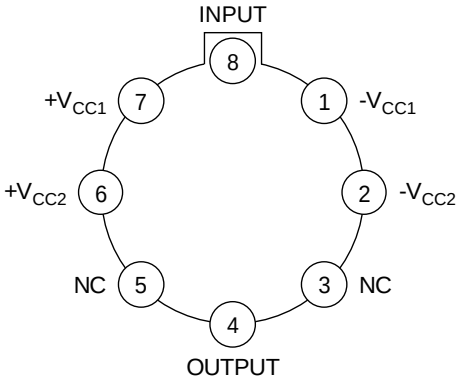
The LH4002 family is intended to fulfill a wide range of high speed applications including video distribution, impedance transformation, and load isolation. It is also suitable for use in current booster applications within an op amp loop. This allows the output current capability of existing op amps to be increased.

ORDERING INFORMATION

Part	Package	Temperature Range
LH4002AH	HO8A (TO5-8 Lead)	-55°C to +125°C
LH4002H	HO8A (TO5-8 Lead)	-55°C to +125°C
LH4002CH	HO8A (TO5-8 Lead)	-40°C to +85°C
LH4002AN	N10A (Plastic Dip-10 Lead)	-40°C to +85°C
LH4002N	N10A (Plastic Dip-10 Lead)	-40°C to +85°C
LH4002CN	N10A (Plastic Dip-10 Lead)	-40°C to +85°C

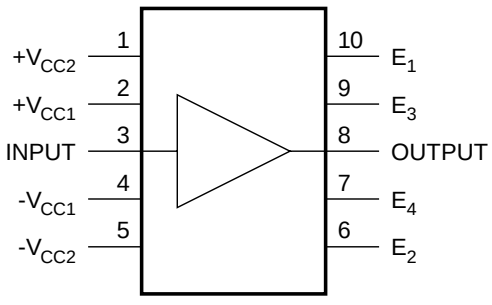
CONNECTION DIAGRAMS

METAL CAN PACKAGE



HO8A

DUAL-IN-LINE PACKAGE



TOP VIEW

N10A

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ABSOLUTE MAXIMUM RATINGS (Note 1)

Supply Voltage . . . . . ±10
Input Voltage . . . . . ±Vsupply
Storage Temperature Range . . . . . -65°C to +150°C
Lead Temperature
(Soldering 10 seconds) . . . . . 260°C
Power Dissipation . . . . . (Note 4)

ESD Tolerance (Note 3) . . . . . ±2000V
Thermal Resistance (θ_{JA}) (Note 6)
H Package . . . . . 125°C/W
N Package . . . . . 50°C/W
Maximum Junction Temperature . . . . . 150°C

DC ELECTRICAL CHARACTERISTICS

The following specifications apply for Supply Voltage = ±5V, V_{CM} = 0, $R_L \geq 100K\Omega$ and $R_S = 50\Omega$ unless otherwise noted.
Boldface limits apply for $T_A = T_J = T_{MIN}$ to T_{MAX}; all other limits $T_A = T_J = 25°C$.

SYMBOL	CHARACTERISTICS	TYP	LH4002A	LH4002	LH4002C	UNITS	CONDITIONS
			Limit (Note 5)	Limit (Note 5)	Limit (Note 5)		
A_{V1}	Voltage Gain 1	0.99	0.96 **0.95**	0.95 **0.95**	0.95 **0.95**	V/V Min	R_L = 1K, V_{IN} = ±2V, R_S = 10K
A_{V2}	Voltage Gain 2	0.92	0.89	0.88	0.87		R_L = 50Ω, V_{IN} = ±3V
A_{V3}	Voltage Gain 3	0.92	0.89	0.87	0.87		R_L = 50Ω, V_{IN} = ±2V
V_{OS}	Offset Voltage	10	15 **25**	25 **35**	30 **40**	mV Max	R_L = 50Ω, R_S = 150Ω
I_B	Input Bias Current	1	10 **20**	15 **30**	20 **40**	µA Max	R_L = 50Ω, R_S = 1KΩ
R_{IN}	Input Resistance	0.3				MΩ	R_S = 10K, R_L = 50Ω
C_{IN}	Input Capacitance	3.5				pF	
R_O	Output Resistance	3	10 **10**	10 **10**	10 **10**	Ω Max	R_S = 10K, R_L = 50Ω
I_{S1}	Supply Current 1	20	30 **35**	30 **35**	35 **35**	mA Max	R_S = 10K, V_{IN} = 0V, R_L = 1K
V_{O1}	Output Swing 1	2.4	2.2 **2.2**	2.2 **2.2**	2.2 **2.2**	±V Min	R_S = 150Ω, V_{IN} = ±2.5V, R_L = 50Ω
V_{O2}	Output Swing 2	2.2	2 **2**	2 **2**	2 **2**		R_S = 150Ω, V_{IN} = ±2.5V, R_L = 1K
V_{O3}	Output Swing 3	3.6	3.0	3.0	3.0	V_{PP} Min	R_S = 150Ω, V_{IN} = ±4.5V, R_L = 50Ω
I_{OUT}	Output Current	80	60	60	60	mA	V_{IN} = 4V

AC ELECTRICAL CHARACTERISTICS

The following specifications apply for Supply Voltage = ±5V, V_{CM} = 0, $R_L \geq 100K\Omega$ and $R_S = 50\Omega$ unless otherwise noted. **Boldface** limits apply for $T_A = T_J = T_{MIN}$ to T_{MAX}; all other limits $T_A = T_J = 25^oC$.

SYMBOL	CHARACTERISTICS	TYP	LH4002A	LH4002	LH4002C	UNITS	CONDITIONS
			Limit (Note 5)	Limit (Note 5)	Limit (Note 5)		
SR_1	Slew Rate 1	3000	2750	2500	2500	V/µs	$V_{IN} = \pm 2V$, $R_L = 50\Omega$ (Note 2)
SR_2	Slew Rate 2	2000	1750	1600	1500		$V_{IN} = \pm 4V$, $R_L = 50\Omega$ (Note 2)
SS_{BW}	Small Signal Bandwidth	300	250	220	200	MHz	$R_L = 50\Omega$, $V_{OUT} = 100mV_{P-P}$
LS_{BW}	Large Signal Bandwidth	140	100	90	80		$R_L = 50\Omega$, $V_{OUT} = 2V_{P-P}$
P_{BW}	Power Bandwidth	130	100	90	80		$R_L = 50\Omega$, $V_{OUT} = 4V_{P-P}$
t_r, t_f	Rise Time Fall Time	1.2	1.5	1.7	1.8	ns	$R_L = 50\Omega$, $C_L \leq 10pF$ $V_O = 100mV_{PP}$
t_{pd}	Propagation Delay Time	2.0				ns	$R_L = 50\Omega$, $C_L \leq 10pF$ $V_O = 100mV_{PP}$
O_S	Overshoot	10				%	$R_L = 50\Omega$, $C_L \leq 10pF$ $V_O = 100mV_{PP}$

Note 1: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. DC and AC electrical specifications do not apply when operating the device beyond its rated operating conditions.

Note 2: Slew rate is measured with 50Ω source impedance at 25°C. For accurate measurements, the input slew rate should be at least 5000V/µs.

Note 3: The test circuit consists of the human body model of 120pF in series with 1500Ω.

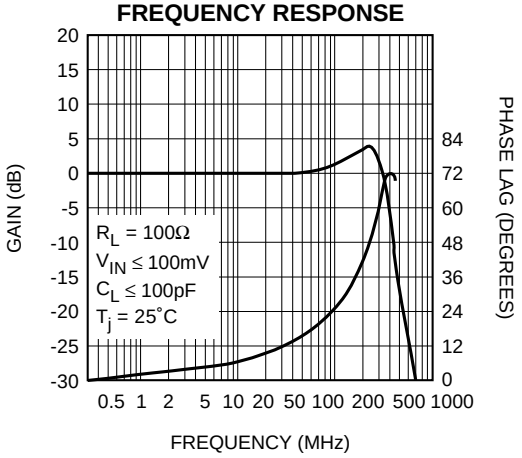
Note 4: The maximum power dissipation is a function of $T_{J(max)}$, θ_{JA} and T_A. The maximum allowable power dissipation at any ambient temperature is $P_D = (T_{J(max)} - T_A)/\theta_{JA}$.

Note 5: Limits are guaranteed by testing, correlation or periodic characterization.

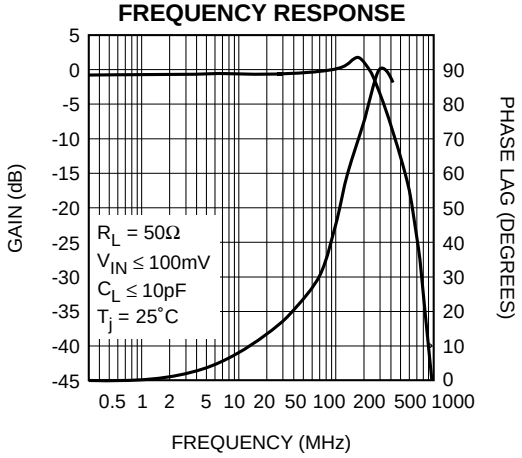
Note 6: For N package, θ_{JA} is measured by soldering the unit directly on a printed circuit board and V^- pins are connected to 2 square inches of 2 oz copper.

TYPICAL PERFORMANCE CHARACTERISTICS

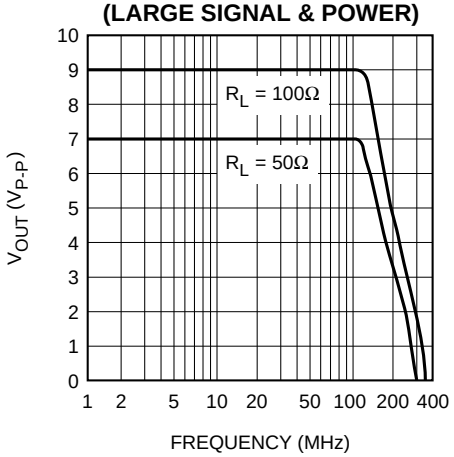
FREQUENCY RESPONSE



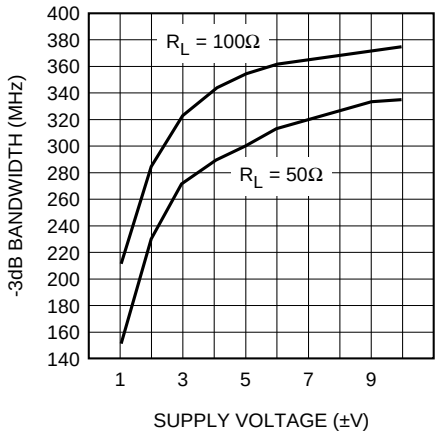
FREQUENCY RESPONSE



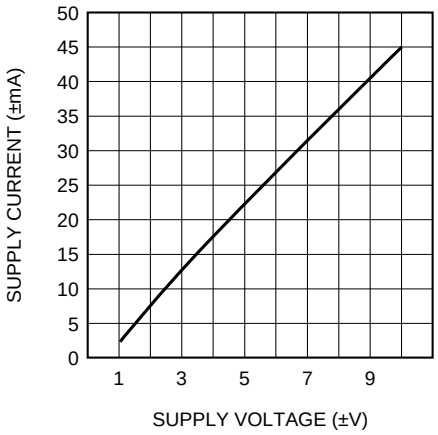
BANDWIDTH (LARGE SIGNAL & POWER)



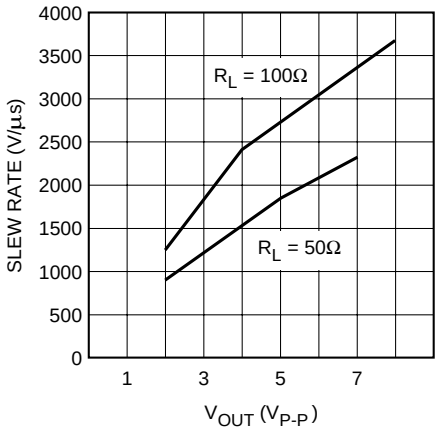
SUPPLY VOLTAGE vs BANDWIDTH



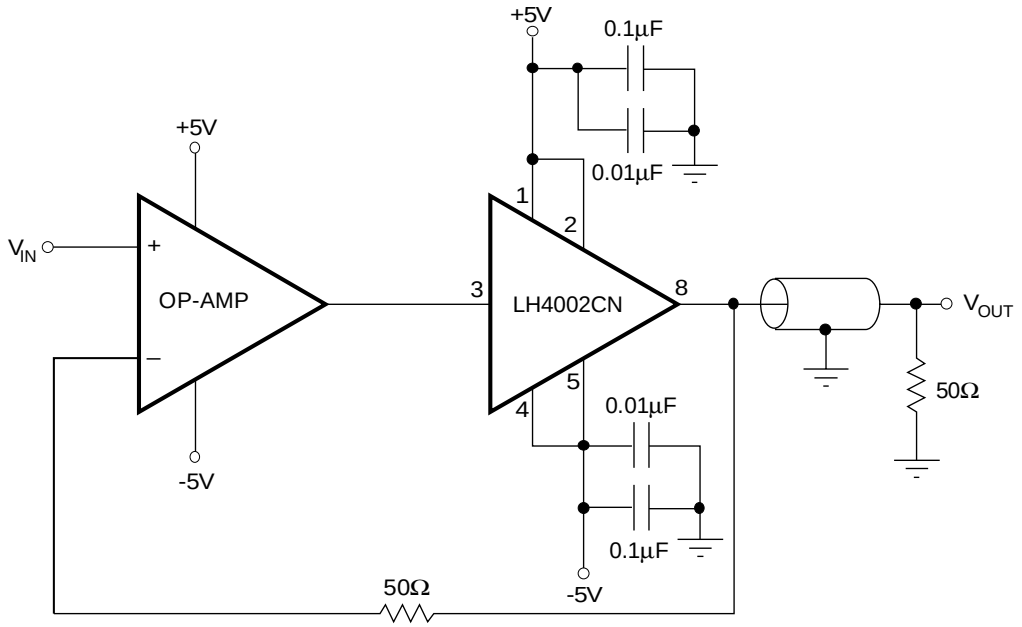
SUPPLY VOLTAGE vs SUPPLY CURRENT



OUTPUPT VOLTAGE vs SLEW RATE



Wideband Unity Gain Amplifier



Short Circuit Protection